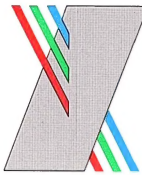


TORCH 

Caretaker



*TripleX* 

# **The Caretaker Guide**

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Version: 1.1  
Date: 18-Oct-85

## SUMMARY

This document explains the processes which are carried out by the Triple X Caretaker before the main Triple X operating system starts working. The Caretaker program and some of the Triple X security processes are described. Readers are instructed how to set the Triple X password (distinct from the operating system password), and what to do if they forget it. The hard disc toolkit, - which is used to correct problems on the hard disc - is explained in detail. Some aspects of computer architecture are introduced when necessary to clarify the processes involved. A glossary at the back of the document is provided for readers who may need it.

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## 1. INTRODUCTION

The Triple X computer reflects 'real life' in many ways. One way that it does this is with the Caretaker program. Just as a human caretaker has a number of regular, helpful duties and looks after a building's security, so too the Triple X Caretaker looks after the Triple X and many aspects of its security.

Usually the Caretaker goes about its tasks without needing instructions, but it can be ordered to perform additional functions when necessary. The Caretaker's regular jobs are detailed in Chapter 2.

For the less usual jobs, the Caretaker needs a key. This key is the key disc which is supplied with the Triple X - easily recognised by the picture of a key on it! It also has the serial number of the computer. The key disc is used to:

- \* set, change, or remove the Triple X password
- \* use the hard disc toolkit (recover from serious hard disc problems)
- \* reload System V - the Triple X main operating system
  - from floppy disc

There is more information about the key disc in Chapter 3.

The Triple X Caretaker program is stored in two parts. The first part is kept in ROM and checks that most of the computer's components are functioning correctly. The second part of the Caretaker is stored on the hard disc unit which is inside the Triple X. There is also a copy of the second part on the key disc, this is used if the contents of the hard disc cannot be loaded. The screen of the Triple X changes colour from blue to light grey when the second part of the Caretaker has been loaded from disc.

## Introduction

The hard disc toolkit allows you to make extensive changes to the Triple X's hard disc unit. With it you can:

- \* check the hard disc
- \* prepare a new hard disc for use
- \* copy the Caretaker from the key disc

There is more information about the hard disc toolkit in chapter 5.

In common with the rest of the Triple X, the Caretaker uses icons to allow users to communicate with it. Initially only the STOP icon is shown - by moving the mouse and clicking the icon you can prevent the Caretaker from carrying out its regular duties. What happens when the Caretaker is told to stop; the other icons that are displayed; and what happens when they are activated is explained in Chapters 3 to 6.

Inside the Triple X is important electronic circuitry which makes the computer function. Most of the circuitry is contained on a single board - the main circuit board of the computer.

It is possible, but unlikely, that your Triple X will go wrong. The main circuit board is checked whenever the computer is switched on. Any problems are reported as a series of error beeps. These error reports are listed in Appendix A. Other problems are reported on the screen - a list of the messages (and what to do about them) is given in Appendix B.

## 2. THE CARETAKER'S REGULAR DUTIES

### Checking the circuitry

As soon as the Triple X is switched on, it beeps and the Caretaker starts checking that the components of the main circuit board are working correctly. If the tests are all successful, the computer issues a short rising tone and passes to the next stage.

If a check fails, it is reported as a series of short and long beeps. The various sequences of beeps are explained in Appendix A.

The only way to stop the error beeps is to switch the computer off. To find out what to do next, contact the Triple X Support Department.

### Loading System V

Once it has checked that the computer is functioning correctly, the Caretaker loads the main operating system - System V - from the hard disc. While it is doing this a large title banner and the STOP icon are displayed on the screen.

If it encounters any problems during its operation, the Caretaker stops working and informs you of them. A large message box is displayed - the message inside it should give you some idea of what has gone wrong. Click the close box to allow the Caretaker to continue working.



### Duties finished

When the Caretaker has finished its duties, it becomes inactive and usually remains so until the computer is switched on again. The computer is now in the care of System V which is described in **The Triple X Handbook**, **Inside System V** and the System V manuals.

### Unusual Events!

The process described above will usually be carried out without any problems. Sometimes, however, the course of events may be different.

The most common of these unusual events is that you will be asked to enter a password. If you know the password, then type it in. If you don't know the password the situation is more complicated. Passwords; how to set them; how to remove them; and what to do if you have forgotten one are described in Chapter 4 - The Password.

You might be asked to load the key disc before the title banner is displayed on the screen.

If the screen is blue and the message:

Please insert the key disc

is displayed, there is a problem with the hard disc unit. You will need to use the hard disc toolkit which is detailed in Chapter 5 - The Hard Disc Toolkit.

If, however, the screen is grey and the Load key disc icon is shown, the computer is unsure of its serial number. The serial number is an integral part of the computer's security system and explained in Chapter 3 - The Key Disc.

## The Caretaker's Regular Duties

Once the title banner is displayed, the message box might display Can't find System V. If this happens you will need to load System V from a floppy disc. The steps you should follow are listed in Chapter 6 - Reloading System V.

The two most unlikely occurrences are that the computer will not switch on at all (you will not hear the initial beep), or that a collection of beeps is heard instead of the rising tone. If either of these occurs you should contact the Triple X Support Department - the telephone number is on the Support Card.

### 3. THE KEY DISC

#### The Triple X serial number

The serial number is an integral part of the Triple X security system. It is stored in the computer, on the hard disc, and on the key disc.

Whenever the key disc is required, its serial number is checked to make sure that the correct disc is being used. As a result key discs cannot be transferred between Triple X computers. The serial number of the computer is printed on the front of the key disc.

If there is a discrepancy between the serial number on the hard disc and the computer's serial number, the key disc is requested.

If the key disc is damaged, or if the wrong key disc is used, the computer will wait for five seconds and then display the message:

Invalid key disc

and switch itself off.

If the key disc matches one of the other two numbers, and the third number is not zero, the message:

Security has been violated

will be displayed. The computer will switch itself off. The most likely cause for a security violation is unauthorised tampering with the computer. If this message appears, you should contact the Triple X Support Department.

If the key disc matches one of the other two numbers, and the third number is zero, it will be corrected. This is most likely when the hard disc has been formatted, or the battery replaced.

### Unlocking the computer

Once the Caretaker's STOP icon is clicked, two other icons are displayed. One is the KEY icon - this allows access to some of the more 'dangerous' options available. The other is the GO icon - this allows the Caretaker to continue loading System V.

You should insert the key disc before clicking the KEY icon. If the key disc is not in the drive you will be asked, pictorially, to put it in. If the key disc is damaged, or if the wrong key disc is used the message:

Invalid key disc

is displayed. Keeping the key disc secure ensures that your Triple X will not be tampered with unless you give permission.

As soon as the Caretaker confirms that the correct key disc is in the drive, you will be allowed to change the system. Although some of the options available do not require information from the key disc, its presence is necessary to ensure that only authorised people can make the changes. This is an example of the security which has been built into the Triple X.

Using the key disc with the Caretaker you can:

- \* set, change, or remove the Triple X password
- \* use the hard disc toolkit (recover from serious hard disc problems)
- \* load System V from floppy disc

These options are explained, in depth, in the following chapters.

## 4. THE PASSWORD

### Why have a password?

The Triple X password adds an extra level of security to the system. Use it to make sure that no-one can use the computer while you are not around.

When a password is set, it is requested whenever the Triple X is switched on. Anyone not knowing the password will be unable to use the computer at all. The Triple X does not ask for a password, though, unless you set one up.

### Switching on with a password

When your Triple X computer is delivered there will not be a password set unless your supplier has arranged for it.

If a password has been set it will have to be typed as soon as the title banner is displayed. Eight white, oblong boxes will be displayed on the screen. Type the password and they will turn black as you type. You can type in any keyboard characters - upper and lower case letters are treated as being different.

When the password has been typed press [return]. The boxes will turn either green (for a correct password) or red (for an incorrect password). If the password is entered incorrectly you will be allowed two more attempts before the computer requests the key disc. If this is not put into the floppy disc drive within 30 seconds, the computer will switch off. If an incorrect key disc is used the message:

Invalid key disc

will be displayed and the computer will switch itself off.

If, however, the serial numbers match, password protection will be bypassed.

When the password has been correctly typed, or bypassed, the main operating system will start to load.

### Setting the password

To set a password on a computer which does not have one, follow the instructions below. If you wish to change an existing password, refer to the next section.

- 1) Switch on the Triple X.
- 2) Click the STOP icon when it appears.
- 3) Place the key disc in the disc drive and click the KEY icon.
- 4) Click the PASSWORD icon.
- 5) Type the new password in the white blocks that appear. You should use six or more letters - any less means that the password is easy to work out systematically. Do not use obvious words such as your name - be imaginative, but make sure you can remember it!
- 6) Confirm the password by typing it again. This checks that you did not mistype it the first time. If this attempt differs from the first one, the white blocks will turn red and you will be returned to step 5.

- 7) Once the blocks turn green, the password is set. After a short delay the GO and KEY icons will be redisplayed.
- 8) Click the GO icon to let the Caretaker continue loading System V.

### Changing a password

The following steps allow you to change a password which has already been set even if you do not know what it is.

- 1) Switch on the Triple X.
- 2) If you know the password, type it in when prompted. Go to step 2 in the previous section.
- 3) If you do not know the password, type in anything. The white blocks will turn red and you will have two more attempts.
- 4) Place the key disc in the drive when requested to do so. This signals that you are, indeed, an authorised user. Go to step 2 in the previous section.

### Cancelling a password

Password protection is cleared when there is no password set. Follow the instructions in the previous section on changing a password. When prompted for the new password, simply press the [return] key. This clears the password and the Caretaker will not ask for one when it is started.



## 5. THE HARD DISC TOOLKIT

### The hard disc

Inside the Triple X computer is a compact hard disc unit which can store large amounts of information. The hard disc is the main storage unit of the Triple X. It is here that all the work files, programs, and even the System V operating system are kept.

When the Triple X left the factory, the hard disc was prepared for use and contained all the information necessary for the computer's correct operation. You will not usually, therefore, need to use the hard disc toolkit when you first receive your computer.

**USING THE TOOLKIT CAN DESTROY THE CONTENTS OF YOUR DISC.**

**DO NOT ATTEMPT TO USE THE HARD DISC TOOLKIT UNLESS YOU HAVE READ AND UNDERSTOOD THIS CHAPTER.**

## The toolkit

### What the toolkit does

The hard disc toolkit should be used only if:

the Caretaker failed to load its second part from the hard disc.

a new hard disc unit has been installed.

any SCSI errors appear in the Kernel Window when System V is loaded.

The hard disc toolkit, like other toolkits, is dangerous in the hands of novices. Be careful!

Using the hard disc toolkit it is possible to:

- verify the hard disc
- re-format the hard disc
- change the size of the hard disc partitions
- change the partition protection
- copy the Caretaker from the key disc to the hard disc.

The rest of this chapter will explain how, why, and when to use each of these options.

## When to use the toolkit

You may need to use the toolkit if you were asked to load the key disc before the Triple X title banner was displayed.

If the message:

Please insert the key disc

appeared while the screen was blue, the second part of the Caretaker could not be loaded from the hard disc. Insert the key disc and use the toolkit to copy the Caretaker onto the hard disc.

If, however, you were asked to load the key disc while the screen was grey (and before the title banner was displayed), the computer needs to check its serial number. The checks that are carried out have been described in Chapter 3 - The Key Disc.

## How to open the toolkit

To use the hard disc toolkit you will need the key disc.

- 1) Switch on the Triple X.
- 2) Put the key disc in the drive if you are asked to do so.
- 3) Give the password if requested.
- 4) Move the mouse and click the STOP icon.
- 5) Put the key disc in the disc drive if you have not already done so.
- 6) Click the KEY icon when it appears.

7) Move the mouse and click the TOOLKIT icon.

Once the icon has been clicked the toolkit program will be loaded and run.

When the toolkit has been opened you will be presented with the main menu. The contents of the menu depend on the state of the hard disc. The different options are explained in the following sections. To choose an option from any of the menus you will need to type the option number and press the [return] key. Use the [return] key **whenever** the computer is waiting for you to tell it something.

Initially only two options will be available:

- 1/ Exit
- 2/ Select disc

Once the disc has been selected, the other menu options should appear.

### **Closing the toolkit**

This option allows you to end a session with the hard disc toolkit. Use it unless you are sure of your next steps. When the toolkit is closed, the Caretaker is restarted.

### **Selecting the hard disc**

Although the Triple X is supplied with a single hard disc unit, it can be expanded and have others attached. The toolkit must be told which hard disc requires attention.

Most Triple X computers will have only one hard disc unit and the toolkit has been set up to expect this. Choose the **Select disc** option from the menu; and confirm that the default values are acceptable.

Triple X customers who have more than one hard disc unit fitted will need to know the number of the hard disc controller board, and the logical unit number of the hard disc. Find these out from your supplier. Choose the **Select disc** option; and type **n** [return] when asked to confirm the default values. You will be asked to:

please specify controller board number (0-7)

and then to:

please specify logical unit number (0-7)

Type each number in and press [return].

If you have two or more hard disc units and are unsure of the relevant information stop using the toolkit now (use the **Close toolkit** option)! Make sure that you have the information (available from your supplier) before trying to use the toolkit again.

If the toolkit has any problems finding the hard disc, these will be reported on the screen. In most cases you will have given the wrong board and/or logical unit numbers. When you return to the main menu the disc will not have been selected. Repeat the process with the correct numbers.

Once the disc has been selected you may see the message:

**bad block list read**

this means that the list of bad blocks (which is kept on the disc) has been read. This message will usually appear if the disc has been formatted before.

You may be asked which make of hard disc is fitted in your computer. You can find out by contacting your supplier.

When you return to the main menu you should find that more options are available. The board and unit numbers should be given. You might also see a message like:

**Controller type is OMTI 5000 series**

This means that the board which controls the hard disc (the same board whose number is displayed on the screen) is one of the OMTI 5000 series.

**Verify the hard disc**

Use this option if one or two SCSI errors appeared in the Kernel Window.

If this option appears in the menu, the toolkit has been able to read some information from the hard disc. You will not, therefore, need to re-format the disc.

Hard discs have a much larger area for storing information than floppy discs do. As a result there are usually areas of the hard disc which are known to be unusable. A list of the bad areas is kept on the disc itself.

Choose this option to check the areas of the disc which can be used.

When the disc has been checked any areas of the disc which are unusable (bad tracks) will be listed on the screen. They will also be stored on the disc - updating the list which is already there.

The operating system will not use any of the tracks which are listed. You can add to the list by choosing the first menu option:

1. add track

You will not usually need to do so.

Return to the main menu by selecting option 4: exit

## Formatting the hard disc

Choosing this option will destroy the contents of the hard disc. Do not use it unless the **Verify** option is absent from the menu. If you choose this option you will also need to:

- change the partition sizes (if you want to)
- copy the Caretaker back onto hard disc
- copy System V back onto hard disc

If the **Verify disc** option appears on the main menu, you should use that. If it does not, you should contact the Triple X Support Department for advice.

If three or more **SCSI errors** for drive 0 appeared in the Kernel Window while System V was loading you may have to format your hard disc. Contact the Triple X Support Department for advice.

SCSI errors for drive 2 are errors from the floppy disc drive. They indicate errors with the floppy disc itself, or the drive mechanism. You cannot correct problems on drive 2 with the toolkit.

When you choose to format your hard disc, you will be asked whether or not the interleave and block size settings are alright. These settings must not be changed.

The time required to format a hard disc is about three minutes. The message:

### FORMATTING

will be displayed on the screen.

Once the disc has been formatted it is verified which takes a further three minutes. While verifying, the message:

### VERIFYING

appears on the screen.

When the verification is finished there is an opportunity to add to the list of bad tracks. Any bad tracks which are not listed on the screen should be added. It is unlikely that this will be necessary.

## Changing the partition size

The hard disc is split into a number of **partitions**. Each partition behaves as a separate disc although most users will be able to ignore this. Associated with each partition is a **permission flag** which determines whether the operating system has access to the partition.



Unless you specifically want to use other partition sizes, you should use those suggested by Torch. These will appear on the screen and are:

<u>Partition number</u>	<u>Size (in k)</u>
0	151
1	5500
2	2048
3	8007
4	5000

The maximum number of partitions that can be set up is 32 (numbered 0 to 31), but the actual number used depends on the capacity of the hard disc and the size of the partitions. You should leave a small amount of space unpartitioned at the end of the disc (about 70-80k will suffice).

If a partition is marked with an asterisk its contents will be saved as long as the size is not reduced. If you try to reduce the size of a partition you will be asked to confirm your choice.

Each partition has an associated permission flag. This determines whether the operating system can read from or write to the partition. The flag consists of one byte of memory and so has a maximum value of 255 (FF in hexadecimal). If the top bit of the byte is set (80 hex) then System V can read the partition. If the next bit is set (40 hex), System V can write to the partition. The other bits are reserved for future expansion.

The permission flag of partition 0 is set to 0. This means that System V cannot read the information stored there, nor can it write anything to the partition. This is where the Caretaker is stored. All the other partitions have values above C0 hex (80 hex + 40 hex = C0 hex) which allows the operating system to use them freely.

You are advised not to change the permission flags. It is not possible to change the permission flag for partition 0.

### Loading the Caretaker

If you have just re-formatted the hard disc, you will have to copy the Caretaker onto it. Use option 6 - Load the Caretaker to do so.

You may need to copy the Caretaker onto the hard disc even if you have not formatted it. Copy the Caretaker if you were asked to load the key disc before the screen turned grey.

Using this option will not destroy the Caretaker password if you have set one up. If, however, you have formatted the hard disc, the password will have been lost. The password is explained in Chapter 4 - The Password.

### Next Steps

If you have just formatted the hard disc you will need to copy the operating system back onto it. How to do so is explained in the next Chapter - Reloading System V.

If, on the other hand, you have not formatted the hard disc, you should be able to use the Triple X without any further problems.

In either case this is the time to close the toolkit (option 1 from the main menu). When the toolkit is closed, the Caretaker starts up from the beginning.

## 6. RELOADING SYSTEM V

### Where to find System V

The main operating system of your Triple X is called System V. It contains the popular UniPlus version of UNIX System V (licensed from AT&T), but has been enhanced to take advantage of the Triple X's advanced features.

System V usually resides on the hard disc, but a spare copy is supplied on about twenty floppy discs. These discs should be kept safely because they are your lifeline should you accidentally corrupt your hard disc.

System V works from a root directory (the main filing cabinet). This is usually held on partition 1 of the hard disc. The rest of System V is spread over the other partitions of the hard disc. You can find out more about System V by reading *Inside System V* which accompanies your Triple X computer.

### Losing System V

It is unlikely, but possible, that some important system files will get lost. This could happen because:

- a) you accidentally deleted them
- b) the hard disc was corrupted
- or c) the power failed while the file was being used

The computer will behave differently depending on which files have been lost.

If the hard disc has just been formatted the message:

File system is not proper

will be displayed.

Otherwise, if the main System V program (the kernel) cannot be found, the message:

Cannot load System V

will be displayed.

If either of these messages appears you will be asked to click the close box and load System V from the **BOOT** floppy disc. What the boot disc looks like; what it does; and what you should do are explained in the next section.

The System V kernel is not, however, the only file essential for System V to operate correctly. Once it is running, certain other files are required. If one of them cannot be found you will not be able to use the computer. Instead the Kernel Window will be displayed, but the Desktop will not appear. What to do if this happens is explained further on.

### **The BOOT disc**

If the Caretaker cannot find System V, you should load the **BOOT** disc. This floppy disc is labelled **BOOT** and is the first of the set of System V discs.

To load System V from the boot disc, you should:

- 1) Put the key disc in the disc drive.
- 2) Click the KEY icon

3) Replace the key disc with the boot disc

4) Click the BOOT icon

5) Wait till the Desktop appears and double click the RemakeUnix icon with the left hand button.

6) What happens next depends on whether or not the hard disc has just been formatted. If it has you will be asked whether you want to:

Reload essential files onto /dev/disk0b?

You should answer Yes to this question.

If, however, your hard disc is not newly formatted a different question appears:

Disc /dev/disk0b still has a UNIX filesystem on it.  
Overwrite?

Answering yes to this question will entirely clear the disc surface. Answering no will leave the disc untouched. The question will be repeated for disk0d and disk0e.

7) When System V is remade, the Caretaker will be restarted.

This time System V will be loaded from the hard disc. You can remove the boot floppy disc. On the desktop you will see only the filing cabinet, the Shell icon and the Install icon. If the hard disc is newly formatted you will have to install the 18 System V floppy discs. Otherwise you should be able to change your desktop and use the Triple X as you are used to.

### Cannot find essential files

If the System V kernel has loaded (the Kernel Window is displayed), but other essential files are missing you will have to:

- 1) Switch off the Triple X.
- 2) Switch it back on!
- 3) Click the STOP icon when it appears.
- 4) Continue from step 2 to step 6 in the previous section.

It is not always necessary to remake System V from scratch. Seek advice from the Triple X Support Department to check what needs to be done.

## APPENDICES



## A. CARETAKER ERROR BEEPS

### Why the Triple X beeps

When the Triple X is switched on it gives a short beep. The service processor then starts a series of checks which are described in Chapter 2 - What happens when you switch on. When the computer passes the tests it emits a short rising tone, indicating that the machine has started up successfully.

If one of the tests fails, then a series of long and/or short beeps is sounded. These indicate the type of error which has occurred. There are pauses between each sequence so that you can identify the pattern of beeps.

The beeps will stop only when the computer is turned off.

### List of error beeps

#### Error 0 - EPROM Checksum Error:

beep sequence: Short Short Short Short

The EPROM containing the checking program has been corrupted. New firmware is required.

#### Error 1 - Video Controller Inoperative:

beep sequence: Short Short Short Long

The video controller (which determines what is seen on the screen) is not working correctly.

**Error 2 - RTC inoperative**

beep sequence: Short Short Long Short

The Triple X's real time clock has stopped.

**Error 3 - Service processor RAM Test Error:**

beep sequence: Short Short Long Long

Data has been stored in the service processor's internal memory, but it has been corrupted.

**Error 4 - VIDEO RAM Test Error:**

beep sequence: Short Long Short Short

Data has been stored in the memory belonging to the video display, but has been corrupted. This indicates a fault in the video display memory.

**Error 5 - Timer Inoperative:**

beep sequence: Short Long Short Long

The timer on the service processor serial port is not working.

### Error 6 - Bootstrap Download Error:

beep sequence: Short Long Long Short

The code required to start the main processor has been copied into video memory. There are inconsistencies between the original and the copied code. As a result, the processor is unlikely to start up correctly. The most probable cause is that the video memory has failed.

### Error 7 - Main Processor Timed Out:

beep sequence: Short Long Long Long

The main processor is not working.

### Error 8 - FAIL Line Active:

continuous tone

Either:

- i) a circuit board connected to the VME expansion bus has failed
- ii) the main processor has stopped working

### Other notes

The FAIL line active fault (Error 8) can occur at times other than startup. If it does there is a possibility that the main processor has failed.

## Caretaker Error Beeps

Sequences of error beeps different to those listed above may be heard. These indicate that the main processor cannot continue processing.

If any of the above errors occur, users should contact the Triple X Support Department for advice about correcting the system. In most cases they will require a service engineer.

## B. CARETAKER ERROR MESSAGES

### Why messages are given

In the course of its duties the Caretaker may discover various problems with the computer. These are displayed in the message box.

### List of error messages

If the Caretaker was loaded from hard disc, then either the key disc or the hard disc might be at fault. Use the hard disc toolkit to copy the Caretaker from the key disc. If the fault persists, the key disc is corrupted.

If the Caretaker was loaded from the key disc, the disc is damaged and needs to be replaced. Contact the Triple X Support Department for help.

### Problems with icons

Icon file corrupted  
Icon file missing

If either of these messages appears the icons will not be displayed correctly. In the worst case you will not see them at all! You can, however, still select icons by pointing to the relevant area of the screen!

### Out of space for icons

This message indicates that the icon files relating to the Caretaker's icons have been corrupted. Some of the icons should be displayed.

To remedy the problem, follow the instructions above.

### Problems with disc drives

Cannot select hard disc  
Cannot select partition  
Cannot assign floppy parameters  
Cannot define floppy parameters  
Cannot select device  
SCSI dma error

All these messages indicate that the computer's communication with storage devices (such as the disc drives) is unsuccessful. Contact the Triple X Support Department.

Cannot read superblock  
Error on read  
File header incorrect  
File system is not proper  
Unknown file system type  
Illegal block number encountered

If these errors occur while the screen is blue and Caretaker is being loaded from the hard disc drive, use the hard disc toolkit to copy the Caretaker from the key disc.

If these errors occur while System V is being loaded, you will have to reload System V from floppy disc as described in chapter 6.

## Caretaker Error Messages

If the errors occur while reading a floppy disc, check that the correct disc is in the drive.

### **File is too large to fit in RAM**

The file that the Caretaker is reading cannot fit into the available memory space. The file has probably been corrupted.

### **Timeout on key disc**

The key disc was not put in the drive quickly enough. There may be a fault with the disc drive or the key disc.

## **Serial numbers and security**

### **Security breach**

The program has been corrupted.

### **Security has been violated**

There is a problem with the computer's serial number. This message is usually displayed only if someone has tampered with the computer.

## Caretaker Error Messages

### Serial number mismatch Invalid key disc

These messages occur once the key disc has been put in the disc drive. Check that the correct key disc is being used. If it is the right one, contact the Triple X Support Department to arrange for a replacement.

### Cannot correct serial number

The serial number cannot be written to the hard disc. Contact the Triple X Support Department.

### New battery fitted

A new battery has been fitted to the computer. Certain system information (such as the time) will be lost. Most of the resultant problems are self correcting.

### Invalid disc

This disc does not contain a Unix file system. It cannot be used.



## Glossary

**block** - basic unit of storage on disc  
**bootstrap** - process which initialised all others  
**bus** - data and command communication line for hardware  
**Caretaker** - program that looks after the Triple X  
**CPU** - the central 'brain' of the computer  
**cylinder** - part of a disc (hard or floppy) which can be accessed during a single revolution of the disc  
**directory** - a list of files and their physical position on disc  
**EPROM** - memory whose contents cannot usually be changed  
**format** - first stage in preparing a disc for use  
**initialise a filing system** - prepare a formatted disc for use with a Unix operating system  
**kernel** - main part of a Unix operating system  
**key disc** - special disc supplied with the Triple X  
**main processor** - see CPU  
**modem** - device which converts voltages to audible signals and vice versa  
**monitor** - 1. visual display unit  
          2. program which interprets the system's basic commands  
**operating system** - program required to manage the system's resources  
**to partition a disc** - divide a hard disc into partitions  
**partition** 1. to partition a disc  
          2. area of a hard disc which behaves as if it were a separate hard disc  
**processor** - device responsible for executing commands  
**RAM** - area of memory whose contents can be changed  
**ROM** - area of memory whose contents cannot be changed  
**root directory** - the top level directory of a file system  
**root disc** - the hard disc partition holding the System V root directory  
**sector** - area on a track  
**service processor** - small processor, subservient to CPU  
**track** - one of the concentric rings which makes up a disc  
**verify** - check that the disc is formatted correctly  
**video memory** - area of memory which is displayed on the screen.

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TORCH 

TripleX 